

AMENDMENTS TO THE DRAWINGS

There are no amendments to the drawings. Applicants have attached a drawing sheet, which includes FIGS. 1 – 3, to replace the original drawing sheet which Examiner identified as missing from the application file.

Attachment: Replacement Sheet

REMARKS

I. Summary of the Examiner's Action

A. Drawings

The Examiner objected to the drawings, indicating that figures 1 – 3 are missing.

B. Claim Rejections

In paragraph 3 of the October 28, 2005 Office Action (hereinafter “the October 28 Office Action”), the Examiner rejected claims 1, 3 – 14 and 16 – 26 under 35 U.S.C. § 103(a) as being unpatentable over United States Patent No. 6,021,333 to Anderson *et al.* (hereinafter “the Anderson patent”) in view of United States Patent No. 5,802,110 to Watanabe *et al.* (hereinafter “the Watanabe patent”).

In paragraph 5 of the October 28 Office Action, the Examiner rejected claims 2, 15 and 27 as being unpatentable over the Anderson patent in view of the Watanabe patent and further in view of United States Patent No. 6,894, 992 to Morvan *et al.* (hereinafter the “Morvan patent”).

These rejections are respectfully disagreed with, and traversed below.

II. Applicants' Response – Drawing Objections

The Examiner indicated that the drawing sheet which contained FIGS. 1 – 3 is missing in this application. Applicants respectfully note that the missing drawing sheet

must have been misplaced by employees of the United States Patent and Trademark Office since the application was filed. Applicants conclude this because the present application has now published as United States Patent Application Publication No. US2002/0071479 A1. As published, the application contains the missing figures. Nonetheless, Applicants have attached a drawing sheet which contains the “missing” FIGS. 1 – 3.

III. Applicants’ Response – Claim Rejections

A. Rejection of Claims 1, 3 – 14 and 16 -26 under 35 U.S.C. § 103 (a)

Claim 1 recites the following subject matter (emphasis added):

1. A method for operating a communication system having subscriber stations (SSs) and at least one base station (BS), comprising the steps of:

arranging a forward link and a reverse link to operate with a common waveform, the forward link operating at a first frequency that is transmitted by the BS and received by the SS, and the reverse link operating at a second frequency that is transmitted by the SS and received by the BS; and

using common forward link and reverse link signal processing circuitry in the BS and individual ones of the SSs.

It is not seen where the references relied upon by the Examiner either describe or suggest the emphasized subject matter of claim 1.

An advantage of Applicants' invention is that subscriber stations 10 and a base station 11 use common signal processing circuitry as described at page 9, lines 15 – 21 (emphasis added):

“Each CDMA channel is preferably coded independently. Independent coding of CDMA channels furthers the symmetry of the upstream and downstream waveform and enables a similar time-slot structure on each CDMA channel. **The upstream and downstream waveform symmetry aids in cost reduction, as the SS 10 and BS 11 baseband hardware can be identical.** The independent coding of each S-CDMA/FDMA channel is an important distinction between this approach and other multi-carrier CDMA schemes.”

It is not seen where this subject matter is either described or suggested in the Anderson patent.

In particular, the Examiner relies on the portion of the Anderson patent appearing at Column 6, lines 37 – 43 (reproduced here) as disclosing this aspect of Applicants' invention:

“FIG. 2 is a block diagram of an exemplary transmitter and receiver in a spread spectrum communication system as may be employed for spreading and despread signals in the communication system of FIG. 1A. In FIG. 2, a spread-spectrum transmitter 201 comprises an input port 202 for input data 203, a chip sequence transmitter generator 204, a modulator 205, and a transmitting antenna 206 for transmitting a spread-spectrum signal 207.”

Notably absent from this portion of the Anderson patent is any disclosure indicating that the transmitter and receiver depicted in FIG. 2 may be used in a base station; subscriber station, or both. It merely suggests that it is suitable for use in some way in the communication system of FIG. 1A. More importantly, the block diagram of FIG. 2 and the accompanying description is *schematic* in nature and says nothing about how the transmitter and receiver depicted in FIG. 2 are implemented in *circuitry*.

This is an import distinction between the disclosure of the Anderson patent and Applicants' invention. The Anderson patent is mainly concerned both with protocols for implementing a layered communication architecture and with a base station for communicating with user stations using the protocols as shown by this portion of the Anderson patent appearing at Column 3, lines 12 – 42 (emphasis added):

“In one aspect of the invention, internal components of a mobile communication system communicate system signaling data across internal interfaces implemented according to a layered architecture. System interfaces effectively function as communication channels between the system components. The system components appear as application end users to the internal communication channels defined by the system interfaces.”

“In another aspect of the invention, a mobile communication system transfers signaling data and end user data over a common set of interfaces, without using separate or dedicated internal communication channels for signaling data.”

“In a preferred embodiment, the communication system includes a base station capable of communicating with a plurality of user stations. The base station is connected with a base station controller (which may also be connected to other base stations). The base station controller may be connected to a network. In a preferred embodiment, the base station comprises two separate processors, an over-the-air (OTA) processor and a base station controller (BSC) interface processor (also called a line card processor). The OTA processor controls a base station transceiver which carries out communication with user stations over communication links. In a preferred embodiment, the interface between the OTA processor and the line card processor comprises a dual-port RAM which is used as a shared resource across the interface. Prioritized queues may be used to facilitate response to relatively higher priority signaling and control messages.”

As is apparent from this summary of Anderson’s purported invention, there is little or no description of the user stations, because Anderson is not mainly concerned with the user stations. The remaining portion of Anderson (particularly the description of the preferred embodiments) spends many pages on protocol details and the structure of the base station (see FIG. 16 and accompanying description), but says absolutely nothing about how the specific signal processing circuitry implemented in the user stations relates to the signal processing circuitry implemented in the base station. As Examiner is well aware, even if a schematic architecture as indicated by a block diagram is identical for two hardware implementations, that fact says nothing about whether the circuitry of separate devices incorporating the hardware implementations are identical. This is a conclusion that must

be reached by examining the circuitry of the two hardware implementations, not the schematic block diagram illustrating functional portions of the circuitry.

Another portion of the Application emphasizes this advantage of Applicants' invention at page 15, line 30 – page 16, line 15 (emphasis added):

If the forward and reverse links of a fixed wireless access system use a common waveform, then some substantial savings can be achieved. **One advantage of this approach is that the same modulators and demodulator architectures that are used in the SS 10 can also be used in the BS 11.** As was noted above, systems having a cellular-like point-to-multipoint architecture always have many more SSs 10 than BSs 11. It is therefore generally economically justifiable to develop custom ASICs for the SS 10 to reduce its cost. **In contrast, ASIC developments are generally too expensive to be viable for base stations. As a result, when different waveforms are used in the forward and reverse links, base stations often must employ more expensive programmable gate arrays rather than low-cost custom ASICs. In contrast, a system which employs the same waveform in the forward and reverse link will have the advantage of being able to use ASICs developed for the SS 10 in the BS 11 as well. This results in a dramatic reduction of the cost of the BS 11. For example, and referring to FIG. 2, the use of the common waveform enables many of the components (e.g., modulator, pulse shapers, matched filters, demodulator) to be implemented using common circuitry shared between the BS 11 and the SS 10.**

As is apparent from this portion, the architecture *and* the circuitry is common in the subscriber stations 10 and base stations of Applicants' invention. If the Examiner

disagrees with Applicants' conclusions regarding the Anderson patent and believes that the subject matter of claim 1 emphasized above is either described or suggested in the remaining portion of the Anderson patent, Applicants respectfully request that the Examiner point out with particularity exactly where it appears.

Applicants respectfully submit that the Watanabe patent likewise does not disclose the relevant subject matter of claim 1.

For the foregoing reasons, Applicants respectfully submit that claim 1 is patentable over the art of record. Applicants therefore respectfully request that the rejection of claim 1 be withdrawn. Applicants respectfully submit that independent claim 14 is patentable for reasons similar to claim 1 and for reasons attributable to its unique subject matter. For this reason, Applicants respectfully request that the rejection of claim 14 be withdrawn as well. Applicants also respectfully request that the rejection of dependent claims 3 – 13 and 16 – 26 be withdrawn as well, as these claims depend, either directly or indirectly, on allowable base claims.

B. Rejection of Claims 2, 15 and 27 under 35 U.S.C. § 103 (a)

Applicants respectfully submit that the Morvan patent does not overcome the deficiencies of the Anderson and Watanabe patents identified above. Accordingly, Applicants respectfully submit that claims 2, 15 and 27 are patentable for reasons similar

to those set forth with respect to claim 1 and for reasons attributable to their unique features.

IV. Conclusion

The Applicants submit that in light of the foregoing remarks the application is now in condition for allowance. Applicants therefore respectfully request that the outstanding rejections be withdrawn and that the case be passed to issuance.

Respectfully submitted,

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Date

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January 30, 2006
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